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VELVET LOOM

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2 Sheets-Sheet 2

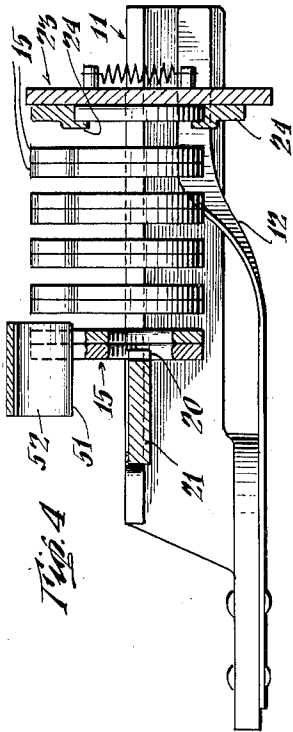


Fig. 4

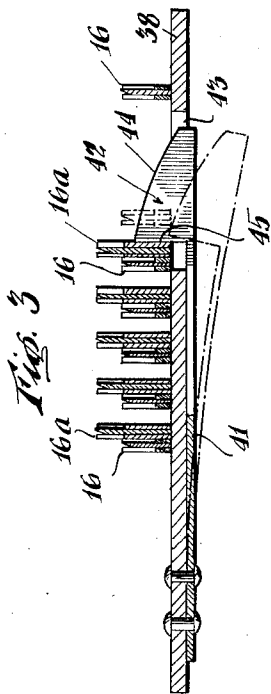


Fig. 3

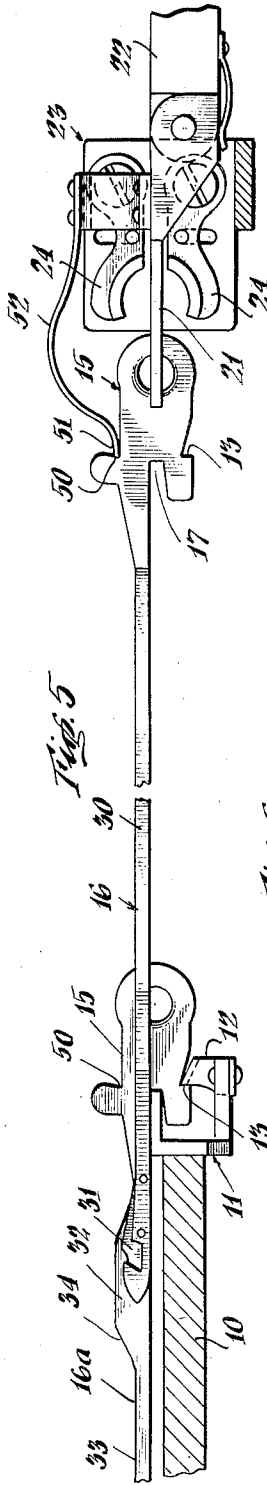


Fig. 5

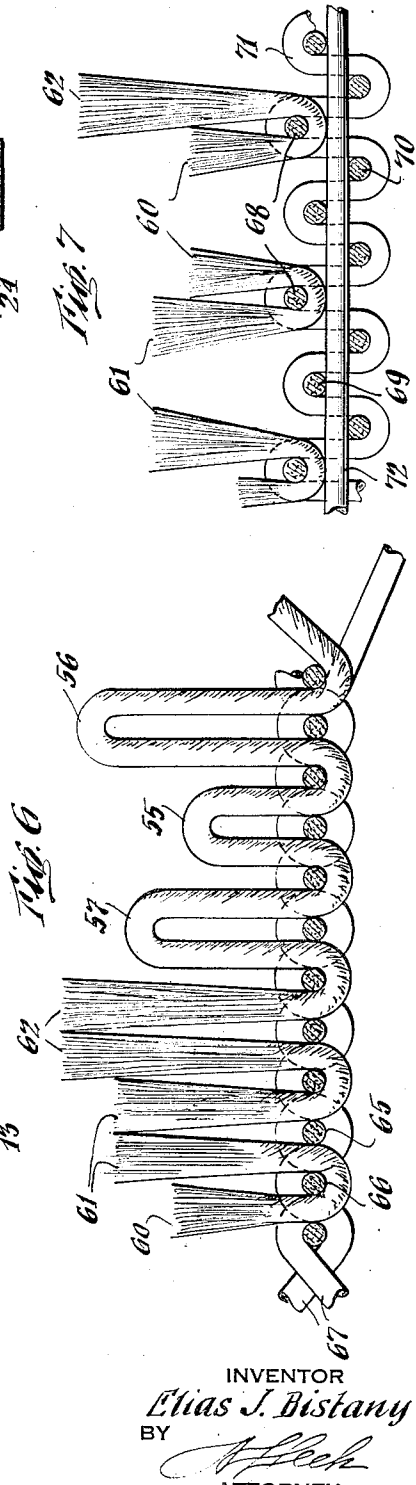


Fig. 6

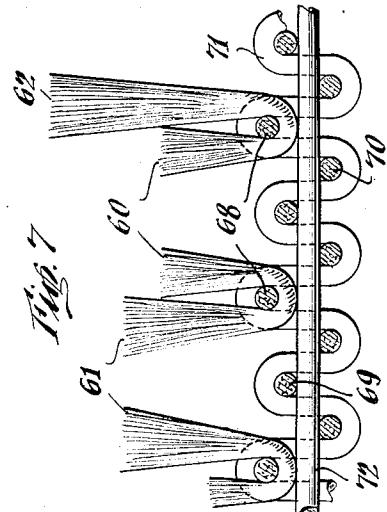


Fig. 7

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VELVET LOOM

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3 Claims. (Cl. 139—40)

This invention relates to velvet looms and more particularly to mechanism for actuating the pile forming wires of a velvet loom.

An object of the invention is to provide novel and improved actuating mechanism for the pile wires of such a loom.

Another object is to provide novel and improved wire actuating mechanism which is adapted for the insertion of a pair of pile forming wires in a single pile warp shed.

Various other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

The nature of the invention will be better understood from the following description taken in connection with the accompanying drawings in which a specific embodiment has been shown for purposes of illustration.

In the drawings:

Fig. 1 is a top plan view of a portion of a velvet loom, with the yarns omitted, showing the pile wire mechanism embodying the present invention;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1 showing the wire holding latch;

Fig. 4 is a section taken on the line 4—4 of Fig. 2 showing the wire holding mechanism;

Fig. 5 is a detail view of the wire pulling mechanism showing a wire partly removed;

Fig. 6 is a sectional view, on an enlarged scale, illustrating one type of product made by use of the mechanism of Figs. 1 to 5; and

Fig. 7 is a similar sectional view illustrating another product which can be made by the apparatus.

Referring to the drawings more in detail the invention is shown as applied to a velvet carpet loom of standard construction having a frame 10 carrying at one side a wire supporting ledge 11 and a latching arm 12 to engage a notch 13 in the underside of the head 15 of a wire 16 (Fig. 2) for preventing withdrawal of the wire when the gripper is retracted. The head 15 also has a recess 17 to engage the ledge 11 for positioning the inserted wire.

The wire pulling and inserting mechanism comprise a hook 20 having a head 21 actuated by a reciprocating link 22 and a gripper 23 having arms 24 to grip the head 15 and actuated by a link 25.

The mechanism thus far described is of standard type and operates to withdraw the forward wire from the fabric and insert the same in the warp shed at the rear of the other wires at each reciprocation of the hook 20 and gripper 23. The hook 20 and gripper 23 are reciprocated along converging paths and the wire is shifted from the hook 20 to the gripper 23 at the end of the withdrawing stroke by the usual mechanism. The latching arm 12 extends forwardly from the wire inserting position but terminates short of the wire withdrawing position so that the wires are released therefrom as they are successively advanced by the reed 26.

In the usual operation of such a loom a wire is securely bound into the fabric by the closing of the shed and the subsequent filler shots and the warp loops formed over

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the wire exert sufficient drag to hold the wire in place on the hook 20 during withdrawal. When, however, two wires are placed in the same shed there is nothing to hold the first wire in place until the second wire is inserted and the shed closed. Hence the first wire is free to fall over or in some cases may even cross the second wire. Also on pulling there is less drag on the first wire and it may become disengaged from the hook. These difficulties are overcome by the present invention.

The invention is shown as applied to mechanism for inserting pairs of wires 16 and 16a in the same shed. The wires 16 are shown as having low shanks 30 and cutting knives 31 at their ends. The wires 16a are shown as having high portions 32 and low portions 33 separated by inclined portions 34, the low portions being at least as high as the shanks 30 of the wires 16. The wires 16a are shown as having cutting knives 35 at their trailing ends although the knives may be omitted if the high loops are to be uncut.

For holding the wires 16 in place the frame 10 carries a bar 38 on the wire tip side which is adjustable by slots 39 and set screws 40. The bar 38 carries a latch arm 41 (Fig. 3) having a latch 42 thereon extending upwardly through a slot 43 in the bar 38. The latch 42 has a sloping rear surface 44 which allows the arm 41 to be flexed for the passage of a wire tip thereover as the wire is advanced by the reed 26. A straight front surface 45 on the latch then engages the wire and holds it in position until the next wire is inserted and advanced by the reed.

For holding the wire on the hook 20 during withdrawal each wire is formed with a shoulder 50 in a position to be engaged by the end 51 of a leaf spring 52 which is attached to the head 21 of the hook. The spring 52 applies sufficient force to hold the head 15 of the wire securely against the hook 20 until the wire is fully withdrawn and is shifted into the grippers 23.

In operation the wire 16 is first inserted, is beaten up by the reed 26 and held by the latch 42 and the second wire 16a is inserted in the same shed. When the shed is closed low loops 55 are formed over the low portions 33 of the wire 16a, high loops 56 are formed over the high portion 32 and intermediate loops 57 over the inclined portions 34, as shown in Fig. 6. The knives 31 on the wires 16 are of a height to cut the low loops 55 and the intermediate loops 57 but not the high loops 56. Hence when the wire 16 is withdrawn the low and intermediate loops 55 and 57 are cut to form low tufts 60 and intermediate tufts 61, leaving the high loops 56 uncut (Fig. 6).

The wire 16a is then pulled. If this wire is non-cutting the high loops 56 remain as loops, making a combination of high loops and low and intermediate height tufts in a single fillerwise row.

If the wire 16a is a cutting wire the high loops 56 are cut to form high tufts 62 when this wire is pulled, making a combination of high, low and intermediate tufts in a single row. As there is no robbing of yarn when subsequent wires are pulled the two legs of each tuft remain of the same height.

The wires 16a are so designed that the various tufts and loops are arranged in accordance with a selected pattern.

Fig. 6 illustrates a two shot double chain velvet having filler row shots 65, filled spacer shots 66, and a double chain 67. The loops 55 and 57 are shown as they appear before pulling the wire 16. The tufts 60 and 61 are shown as they appear after the wire 16 is pulled.

Fig. 7 illustrates a four shot single chain velvet having upper row shots 68, upper spacer shots 69 and lower filler shots 70 bound by a chain 71 and a straight stuffer 72. In this form each pile loop spans three filler shots and the pile wires are disposed in the loops above or on each side of the upper spacer shots 69. The fabric is shown in Fig. 7 after the wires have been pulled.

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These are illustrative of variations in standard velvet backing weaves to which the invention may be applied to form a pattern composed of a combination of loops and tufts or of tufts of different heights without appreciable alteration in a standard velvet carpet loom.

What is claimed is:

1. In a pile wire loom having a plurality of pile forming wires having heads, and reciprocating hook means to engage said heads for successively pulling said wires, a shoulder on said heads and a spring member carried by said hook means to engage said shoulder for holding said head on said hook means during the pulling stroke.

2. A pile forming wire for a loom having a pulling hook with a spring thereon, comprising a head, a wire carried thereby over which loops are formed during weaving, said head having a shoulder adapted to be engaged by said spring for holding said head onto said hook during the pulling stroke.

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3. In a pile wire loom having a plurality of pile forming wires having heads and tip ends and means for successively pulling and inserting said wires in a repeating series and a reed for advancing said wires, a fixed bar on said loom over which the tip ends of said wires slide as they are beaten into place by said reed, a spring latch projecting upwardly from said bar and having a shoulder to engage the trailing side of said wires at said tip ends for holding said wires in position for weaving, and being depressible to permit said wires to be advanced thereover by said reed.

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